

**Practice: 340 - Cover Crop****Scenario: #1 - Mixed Species - Mech/Chem Kill****Scenario Description:**

Typically a cover crop consisting of a small grain-legume mix or other species to address concerns will be planted immediately after the harvest of a crop (within 30 days), and will be followed by a crop that will utilize the residue as a mulch. This scenario assumes that seed will be planted with a no-till drill. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop is terminated by chemical or mechanical means following NRCS Cover Crop Termination Guidelines. Common resource concerns include Soil Erosion - sheet & rill and wind erosion, Soil Quality Degradation - Subsidence, compaction and Organic Matter depletion, Degraded Plant Condition - undesirable plant productivity and health

**Before Situation:**

Crops such as corn, soybeans, wheat, cotton, etc. are grown and harvested in mid-late fall or early summer. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills before the next crop. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil organic matter declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

**After Situation:**

Immediately after harvest (within 30 days), fields are planted with a cool season or warm season cover crop. The average field size is 40 acres. The cover crop is seeded with a no-till drill. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring or throughout the summer months. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. The cover crop is terminated by using an approved herbicide or mechanical kill method (mowing, crimping, rolling, undercutting, etc.), prior to planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, and plant diversity introduced to the cropping system. Wind erosion is reduced by standing residues. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

**Scenario Feature Measure:** Area planted**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$3,447.20**Scenario Cost/Unit:** \$86.18**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$4.76	20	\$95.20
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	\$15.94	20	\$318.80
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$16.58	40	\$663.20
<b>Materials</b>						
Five Species Mix, Cool Season, Annual Grasses and Legumes	2320	Cool season, introduced grass and legume mix. Includes material and shipping only.	Acre	\$55.89	20	\$1,117.80
Five species Mix, Warm Season, Annual Grass/Legume/Forb	2328	Native, warm season annual grass, legume, and forb mix. Includes material and shipping only.	Acre	\$46.78	20	\$935.60
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	20	\$316.60

**Practice: 340 - Cover Crop****Scenario: #2 - Cover Crop-Non-Legume, DeadLitter****Scenario Description:**

Typically a small grain will be planted as a cover crop immediately after harvest (within 30 days) of a row crop, and will be followed by a row crop that will utilize the residue as a mulch. This scenario assumes that seed will be planted with a no-till drill. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop will be terminated using chemical or mechanical methods following NRCS Cover Crop Guidelines. Common resource concerns include Soil Erosion - sheet & rill and wind erosion, Soil Quality Degradation - Subsidence, compaction and Organic Matter depletion, Degraded Plant Condition - undesirable plant productivity and health

**Before Situation:**

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil organic matter declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

**After Situation:**

Immediately after harvest of row crop (within 30 days), fields are planted with a small grain cover crop. The average field size is 40 acres. The cover crop is seeded with a no-till drill. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. Wind erosion is reduced by standing residues. The cover crop is terminated with an approved herbicide or by mechanical means prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity introduced to the cropping system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

**Scenario Feature Measure:** Area planted**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$2,855.80**Scenario Cost/Unit:** \$71.40**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$16.58	40	\$663.20
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$4.76	20	\$95.20
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	\$15.94	20	\$318.80
<b>Materials</b>						
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$36.55	40	\$1,462.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	20	\$316.60

**Practice: 340 - Cover Crop****Scenario: #3 - Legume-N Fixation****Scenario Description:**

A legume will be planted as a cover crop immediately after harvest of a row crop, and will be followed by a row crop that will utilize fixed nitrogen and cover crop biomass as a mulch. This scenario assumes that seed will be planted with a no-till drill. Legume seeds must be inoculated with the proper inoculant prior to planting. The cover crop should be allowed to reach early to mid-bloom before it is terminated, using chemical or mechanical methods following NRCS Cover Crop Termination Guidelines, in order to maximize nitrogen fixation. The legume will promote biological nitrogen fixation and reduce energy use by reducing the need for commercial nitrogen fertilizer in following crops.

**Before Situation:**

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil organic matter declines over time as a result of tillage practices and long periods of bare soil. Only commercial nitrogen fertilizer is used for following crops.

**After Situation:**

Immediately after harvest (within 30 days) fields are planted with a legume cover crop, typically a clover or vetch species. Legume seeds must be inoculated with the proper inoculant prior to planting. The average field size is 40 acres. The cover crop is seeded with a no-till drill. No fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. The cover crop is terminated with an approved herbicide or mechanical methods prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, and plant diversity introduced to the cropping system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect. By utilizing the nitrogen that is fixed by the legume cover crop, the amount of energy is reduced by reducing the amount of commercial fertilizer that will be needed for the following crop.

**Scenario Feature Measure:** Area planted**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$2,855.80**Scenario Cost/Unit:** \$71.40**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$4.76	20	\$95.20
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	\$15.94	20	\$318.80
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$16.58	40	\$663.20
<b>Materials</b>						
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$36.55	40	\$1,462.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	20	\$316.60

**Practice: 340 - Cover Crop****Scenario: #4 - Organic Cover Crop****Scenario Description:**

Typically a small grain or small grain-legume mix (may also use forage sorghum, radishes, turnips, buckwheat, etc) will be planted as a cover crop immediately after harvest (within 30 days) of an organically grown crop, and will be followed by an organically grown crop that will utilize the residue as a mulch. This scenario assumes that seed will be planted with a no-till drill. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop will be terminated using a mechanical kill method (mowing, rolling, undercutting, etc.) prior to planting the subsequent crop. This scenario **REQUIRES** use of Certified Organic Seed. Common resource concerns include Soil Erosion - sheet & rill and wind erosion, Soil Quality Degradation - Subsidence, compaction and Organic Matter depletion, Degraded Plant Condition - undesirable plant productivity and health

**Before Situation:**

Organically grown crops such as various vegetable and fruit crops (along with organically produced row crops) are grown and harvested in mid-late fall. Fields are disked immediately following harvest. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil organic matter declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

**After Situation:**

Immediately after harvest (within 30 days) of an organic crop, fields are planted with a small grain-legume mix cover crop, typically rye and clover. The average field size is 25 acres. The cover crop is seeded with a no-till drill. No additional fertilizer is applied with the cover crop. Legume seeds must be inoculated with the proper inoculant prior to planting. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. The cover crop is terminated using a mechanical kill method (mowing, rolling, undercutting, etc.), prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, and plant diversity introduced to the cropping system. Wind erosion is reduced by standing residues. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

**Scenario Feature Measure:** Area planted**Scenario Unit:** Acre**Scenario Typical Size:** 25**Scenario Cost:** \$2,748.00**Scenario Cost/Unit:** \$109.92**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	\$15.94	25	\$398.50
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$16.58	25	\$414.50
<b>Materials</b>						
Certified Organic, Three plus Species Mix, Cool Season, Annual Grasses and Legumes	2343	Certified organic cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$77.40	25	\$1,935.00

**Practice: 340 - Cover Crop****Scenario: #5 - Multispecies Cover Crop on Pasture****Scenario Description:**

Typically a small grain-legume mix (may also use forage sorghum, radishes, turnips, buckwheat, etc) will be overseeded into perennial pasture for purposes of improving soil health. Cover crop species are drilled into native or improved pastures (Bermuda Grass/Bahia Grass). This scenario assumes that seed will be planted with a no-till drill. Legume seeds must be inoculated with the proper inoculant prior to planting. The cover crop should be allowed to generate as much biomass as possible. Covers may be grazed to a level that meets their conservation purpose. Common resource concerns include Soil Erosion - sheet & rill and wind erosion, Soil Quality Degradation - Subsidence, compaction and Organic Matter depletion, Degraded Plant Condition - undesirable plant productivity and health.

**Before Situation:**

Both improved and native pastures are overgrazed and little cover remains through fall and winter. Pasture management typically includes application of nutrients to a predominant monoculture of improved grasses. Soil organic matter is reduced, soil temperatures exceed the ambient air temperature reducing biological activity in the soil due to high soil temperatures and low soil moisture. Exposed pasture soils are subjected to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the summer residue continues to degrade and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with rills visible by early fall. Soil organic matter declines over time as a result of overgrazing, lack of biomass production and long periods of bare soil. Biological fixation of nitrogen is not occurring due to lack of diversity (legumes).

**After Situation:**

Pastures are overseeded with a mixed species cover in the late summer or early fall, with either cool-season annuals on warm season pastures or warm season annuals on cool season pastures. The average field size is 40 acres. The cover crop is seeded with a no-till drill. No additional fertilizer is applied. The cover crop provides soil cover during the fall, throughout the winter, and into the early spring until the existing pasture species begin growth. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. The cover crop will be managed to maximize plant biomass production and mob-grazed (high intensity, short duration) to meet resource concern criteria. Wind erosion is reduced by standing residues. Over time, soil health is improved due to the additional biomass and the plant diversity introduced to the pasture system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect. Soil moisture is improved.

**Scenario Feature Measure:** Area planted**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$2,898.80**Scenario Cost/Unit:** \$72.47**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$16.58	40	\$663.20
<b>Materials</b>						
Five Species Mix, Cool Season, Annual Grasses and Legumes	2320	Cool season, introduced grass and legume mix. Includes material and shipping only.	Acre	\$55.89	40	\$2,235.60